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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,050	02/27/2006	Yiping Fan	US03 0282 US2	5345

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EXAMINER	
LE, DINH THANH	

ART UNIT	PAPER NUMBER
2816	

NOTIFICATION DATE	DELIVERY MODE
09/15/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/570,050	FAN, YIPING	
	Examiner	Art Unit	
	DINH T. LE	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,9-18 and 21-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 9-18 and 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

NON-F1FINAL REJECTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/31/2008 has been entered.

Claim Objection

Claim 23 is objected to because it is a duplicate of claim 22. Correction is required.

Claims Rejections

Claim Rejections - 35 USC § 112

Claims 3, 13, 22-23 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction or clarification is required.

In claims 3, 13 and 22-23, it is not understood how one filer can be a digital filter and how this limitation is read on the preferred embodiment or seen on the drawings.

In claim 25, It is not understood how the low-pass can be transformed into band pass and how this performance can be "performed" and what the loss-pass and band-pass are and how this limitation is read on the preferred embodiment or seen on the drawings.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 4-6, 9-12, 14-18, 21 and 24-25 are rejected under 35 USC 103 (a) as being unpatentable over Hwang et al (US 6,678,511).

Regarding claims 1 and 11, Hwang et al discloses in Figures 3-9 a filter circuit comprising:

- at least two cascading filters (10, 20 in Figure 7) of different orders and having passband ripples with respect to signal gain of the respective filter at frequencies in a passband of the respective filter and nearly equal in magnitude and out of phase with respect to each other in order to minimize a passband ripple in the composite filter, see lines 64-67 of column 4 in which the filter (20) is nine stage band pass filter and lines 5-25 of column 5 in which the filter (10) is designed in favor of two or four stages. Thus, the orders of the filter (10) is different from the orders of filter (20).

Regarding claims 2 and 12, wherein characterized in that the magnitude of the passband ripples in the at least two cascading filters(10, 20) are equal.

Regarding claims 4 and 14, wherein at least one of the at least two cascading filters (10, 20) comprises an analog filter.

Regarding claims 5 and 15, wherein in that at least one characteristic of the at least two cascading filters (10, 20) is selected to minimize the passband ripple in the composite filter.

Regarding claims 6 and 16, wherein the at least one characteristic comprises the order of the at least two cascading filters (10, 20), see lines 5-25 of column 5.

Regarding claims 9 and 19, wherein the at least one characteristic comprises a bandwidth of the at least two cascading filters (10, 20).

Regarding claim 10, wherein the filter (20) is the band pass filter so that it comprises a stopband attenuation of the at least two cascading filters (10, 20), see Figure 6c.

However, Hwang et al fail to suggest that the orders of the two cascading filters difference in value by exactly one as called for in claims 1 and 11, one filter is a third order while another filter is the fourth order as called for in claim 21, the combined ripples is less than .01dB at around 7.8 MHZ as called in claim 21. For example, Hwang suggests in Figures 3-9 to use the second filter (10) having the order which is different from the order of the main filter (20) for cancelling the ripples of the main filter (2). A skilled artisan recognizes that the ripples of a predetermined filter is determined by the type and the order of this filter. For example, the elliptic filter generates high ripples than the Butterworth filter and the first order filter generates less number of ripples in the passband than the third order filter. Thus, in order to cancel out the ripples of the main filter, the order and the type of the second filter should be selected depending upon the order and the type of the main filter. Thus, since the circuit of Hwang et al has the same structure as the claimed circuit, selecting the order of the second filter to have a different order in an optimum value exactly one to have a combined ripple less than .1 dB at 7.8 MHZ is considered to be as a matter of a design expedient for an engineer depending upon the particular application or environment in which the circuit of Hwang et al is to be used. Lacking of showing

any criticality, it would have been obvious to a person having skill in the art at the time the invention was made to select the order of second filter (10) of Hwang to have order difference of the two filters (10, 20) in the optimum value of exactly one and the combined ripple as claimed for the purpose of accommodating with the type and the orders of the main filter of a predetermined system.

Claims 3, 13 and 22-23 are further rejected under 35 USC 103 (a) as being unpatentable over Hwang et al (US 6,678,5110) in view of Chan et al (US 6,920,471).

Hwang et al discloses a filter circuit with all of the limitations of the claimed invention as stated above but does not disclose that at least one of the at least two cascading filters comprises a digital filter such as a finite response filter.

Nevertheless, Chan et al suggests in Figure 3 a circuit comprising a digital filter (100) coupled to an analog filter (12) for compensating for the absolute sampling and digital delays associated with a matching circuit. See the Abstract.

It would have been obvious to a person having skill in the art at the time the invention was made to employ the digital filter as suggested by Chan et al in the circuit of Hwang et al for the purpose of compensating for the absolute sampling and digital delays associated with a matching circuit. Also, it is well known in the art that the digital filter performs the same function as the analog filter with the exception of that the digital filter handles digital input signal while the analog filter handles the analog input signal. Thus, selecting the digital signal for the circuit of Hwang et al to handle the digital input signal is considered to be a design expedient for an

engineer for an engineer depending on an a particular application that would have been obvious at the time of the invention.

Response to Applicant's Arguments

The applicant argues that Hwang reference appear to only explicitly mention nine filter stages in a first filter and two or four filter stages in a second filter or over twice as many stages between the two filters and does not suggest that a difference of one between the orders. The arguments are not persuasive because selecting the order of second filter (10) of Hwang to have order difference of the two filters (10, 20) in the optimum value of exactly one for the purpose of accommodating with the type and the orders of the main filter is considered to be a matter of a design expedient for an engineer as stated above.

The applicant argues that the Examiner erroneously asserts that one of skill in the art would modify the Hwang reference with the cited portions of the Chan reference in order to compensate for absolute sampling and digital delays. The arguments are not persuasive because combining the analog filter with the digital filter is suggested by Chan as stated above and the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DINH T. LE whose telephone number is (571) 272-1745. The examiner can normally be reached on Monday-Friday (8AM-7PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan, can be reached at (571) 272-1988.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/DINH T. LE/

Primary Examiner, Art Unit 2816